WHAT IS CLAIMED:

1. A method of transferring vector data between a memory and a vector buffer in a computer system, the method comprising:

executing an application program;

issuing a vector data transfer instruction from the application program to transfer the vector data from the memory to the vector buffer;

determining the starting address of the vector data to be transferred;

determining the ending address of the vector data to be transferred; and

determining whether the ending address of the vector data to be transferred is within the same virtual page as the starting address of the vector data in memory.

2. The method of claim 1, wherein the amount of data to be transferred is divisible by a factor of two.

3. The method of claim 1, wherein the one page of the memory is a virtual memory page.

4. The method of claim 1, further comprising:

generating an address error exception when the ending address of the vector data to be transferred is not within the same page of the memory as the starting address.

5. The method of claim 1, wherein the ending address of the vector data to be transferred is determined in parallel with determining the starting address of the vector data to be transferred.

6. The method of claim 1 wherein the ending address of the vector data to be transferred is determined based on the number of data elements to be transferred.

7. The method of claim 1 wherein the ending address of the vector data to be transferred is determined based on the stride of the vector data to be transferred.

8. The method of claim 1 wherein the ending address of the vector data to be transferred is determined based on the width of the vector data elements to be transferred.

9. The method of claim 1 wherein determining the ending address of the vector data to be transferred is based on shifting the width of the data elements to be transferred by the stride of the vector data to be transferred.

10. A data processing system comprising:

a data processor;

a memory;

a plurality of application programs, the application programs being operable to issue vector data transfer instructions for transferring vector data between the memory and a vector transfer unit, wherein the vector data transfer instructions are posted to an instruction queue in the vector transfer unit; and

first program instructions for determining the starting address of the vector data to be transferred, the ending address of the vector data to be transferred, and whether the ending address of the vector data to be transferred is within the same virtual memory page as the starting address.

11. The data processing system of claim 10, wherein the amount of data to be transferred is divisible by a factor of two.

12. The data processing system of claim 10, wherein the one memory page is a virtual memory page.

13. The data processing system of claim 10, further comprising:

second program instruction for generating an address error exception when the ending address of the vector data to be transferred is not within the same memory page as the starting address.

14. The data processing system of claim 10, wherein the ending address of the vector data to be transferred is determined in parallel with determining the starting address of the vector data to be transferred.

15. The data processing system of claim 10 wherein the ending address of the vector data to be transferred is determined based on the number of data elements to be transferred.

16. The data processing system of claim 10 wherein the ending address of the vector data to be transferred is determined based on the stride of the vector data to be transferred.

17. The data processing system of claim 10 wherein the ending address of the vector data to be transferred is determined based on the width of the vector data elements to be transferred.

18. The data processing system of claim 10 wherein determining the ending address of the vector data to be transferred is based on shifting the width of the data elements to be transferred by the stride of the vector data to be transferred.

19. A computer program product for transferring vector data between a memory and a vector buffer pool in a data processor, the computer program product comprising:

first program instructions for requesting vector data transfers using vector data transfer instructions;

second program instructions for partitioning a vector buffer pool in the vector transfer unit into a plurality of vector buffers;

third program instructions for assigning a vector buffer to each application program that issues vector data transfer instructions;

fourth program instructions for posting the vector data transfer instructions to a vector transfer instruction queue;

fifth program instructions for determining the ending address of the vector data to be transferred;

sixth program instructions for determining the physical address of the starting location of the vector data to be transferred; and

seventh program instructions for whether the ending address of the vector data to be transferred is within the same memory page as the starting address.

20. The computer program product of claim 19, wherein the fifth program instructions are executed in parallel with the sixth program instructions.

21. The computer program product of claim 19, wherein the amount of data to be transferred is divisible by a factor of two.

22. The computer program product of claim 19, wherein the one memory page is a virtual memory page.

23. The computer program product of claim 19, further comprising:

eighth program instructions for generating an address error exception when the ending address of the vector data to be transferred is not within the same memory page as the starting address.

24. The computer program product of claim 19, wherein the ending address of the vector data to be transferred is determined in parallel with determining the starting address of the vector data to be transferred.

24. The computer program product of claim 19 wherein the ending address of the vector data to be transferred is determined based on the number of data elements to be transferred.

25. The computer program product of claim 19 wherein the ending address of the vector data to be transferred is determined based on the stride of the vector data to be transferred.

26. The computer program product of claim 19 wherein the ending address of the vector data to be transferred is determined based on the width of the vector data elements to be transferred.

27. The computer program product of claim 19 wherein the ending address of the vector data to be transferred is determined based on shifting the width of the data elements to be transferred by the stride of the vector data to be transferred.